



# UNITED STATES PATENT AND TRADEMARK OFFICE

cel

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/624,063

07/21/2003

Scott D. Brandenburg

DP-309190

5167

22851

7590

03/21/2006

DELPHI TECHNOLOGIES, INC.

M/C 480-410-202

PO BOX 5052

TROY, MI 48007

EXAMINER

DINH, TUAN T

ART UNIT

PAPER NUMBER

2841

DATE MAILED: 03/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/624,063

Applicant(s)

BRANDENBURG ET AL.

Examiner

Tuan T. Dinh

Art Unit

2841

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 December 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date. _____  | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments filed 12/21/05 have been fully considered but they are not persuasive.

Applicant argues:

Because "all of the elements disclosed in the claims and specification, see Remarks, page 4, lines 5-12" therefore, the drawings in condition are proper.

Examiner disagrees because all of the elements even though disclosed in the specification and claims, but in the drawings must be shown, for example, claims 1, 9, and 16 are claimed "the PCB including a plurality of conductive layers each separated by a non-conduct layer" but not show in the drawings. As in figure 2 and 2A, the PCB shows only one layer, but not a multilayer as being claimed in the claims 1, 9, and 16.

Examiner suggest applicant to provide a new drawing to cooperate with claim language.

Rostoker does not appear to teach "a first integrated conductive bus structure extending from a first edge of the PCB, wherein a first portion of the bus structure that extends from the edge of the PCB forms a plurality of electrically separate contacts of a connector and a second portion of the bus structure that is integrated within the PCB couples each of the contacts to at least one conductive trace of the PCB through plated holes."

Examiner disagrees because Rostoker does teach a first integrated conductive bus structure (102) extending from a first edge (the edge formed at right angle of the PCB) of the PCB (104, 106, see figure 1), wherein a first portion (outer bus 108b-figure 2) of the bus structure that extends from the edge of the PCB forms a plurality of electrically separate contacts of a connector and a second portion (inner 108) of the bus structure that is integrated within the PCB couples each of the contacts to at least one conductive trace of the PCB through plated holes (132, column 9, line 54).

Therefore, examiner believes the rejection is proper.

Applicant argues in a second paragraph in the Remarks start at page 6, line 13 that either Hernandez et al. [sic] or Rostoker does disclose the PCB having conductive layers separated by non conductive layers.

At portion #7 in the Office action, the examiner recites Rostoker et al. ('750) as a main reference to reject the claims.

As shown in figure 11 of Rostoker not Hernandez et al. [sic], the reference discloses a multilayer ceramic substrate or board (1118) having conductive layers (1106) separated by non-conductive layers (1116). All of the elements do disclose in the Rostoker et al.

### ***Drawings***

2. The drawings are objected to under 37 CFR 1.83(a) because they fail to show:

(a) "the PCB including a plurality of conductive layers each separated by a non-conduct layer, claims 1 and 9, lines 3-4, and claim 16, lines 4-5",

(b) "at least one conductive trace of the PCB plated through holes, claim 1, lines 9-10)" as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### **Claim Rejections - 35 USC § 102**

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 5-6, 8-9, 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Rostoker et al. (U.S. Patent 5,434,750).

As to claims 1, 5-6, 8-9, 15, Rostoker et al. discloses a printed circuit board (PCB) assembly (100) as shown in figures 1-11 comprising:

a printed circuit board (PCB-1118, see figure 11), the PCB including a plurality of conductive layers (1106-figure 11) each separated by a non-conductive layer (1116);  
and

a first integrated conductive bus structure (102) extending from a first edge of the PCB (104, 106, figure 1), wherein a first portion (outer 108-figure 2) of the bus structure that extends from the edge of the PCB forms a plurality of electrically separate contacts of a connector and a second portion (inner 108) of the bus structure that is integrated within the PCB couples each of the contacts to at least one conductive trace of the PCB through plated holes (132, column 9, line 54), the assembly is overmolded with a plastic material (916 or 1016, see figures 9-10), the portion of the plastic material (906) formed a connector housing (the encapsulation plastic body 906) and surround the contacts of the connector (leadframe), the connector housing is shaped to receive a body of a mating connector, and further comprising: a second integrated conductive bus structure

(102) extending from a second edge of the PCB (opposite to element 102 on the other side), wherein a first portion (108, see figure 2) of the second integrated conductive bus structure that extends from the second edge of the PCB forms a plurality of second electrically separate contacts of a second connector and a second portion (108b) of the second integrated conductive bus structure that is integrated within the PCB couples each of the second electrically conductive contacts to at least one conductive trace of the PCB through different plated holes (134), and wherein the second edge is opposite the first edge.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 2-4, 10-13, 16-19, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rostoker et al. ('750) in view of Keyser (U. S. Patent 6,579,105).

As to claims 2-4, 10-13, 16-19, and 21, Rostoker et al. discloses the assembly for an automotive assembly, the assembly, which is a power module, Rostoker et al. discloses all of the limitations of the claimed invention. However, he does not specific disclose a filter block, which is made by ferrite material, incorporated within the PCB approximate the integrated bus structure, the filter block providing inductive filtering for the contacts of the connector, and a plurality of capacitors positioned on at least one

side of the assembly, wherein at least one of the capacitors is coupled between ground and each one of the contacts of the connector.

Keyser shows a ferrite filter block (80) as shown in figure 10, incorporated within the PCB (34) approximate the integrated bus structure (16), the filter block providing inductive filtering for the contacts of the connector, and a plurality of capacitors (76) positioned on at least one side of the assembly, wherein at least one of the capacitors is coupled between ground and each one of the contacts of the connector

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have a teaching of Keyser employed in the assembly of Rostoker et al. in order to reduce EMI from the components formed on board.

7. Claims 7, 14, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rostoker et al. (750) in view of Bisosy (U.S. Patent 6,054,754).



As to claim 7, Rostoker et al. does not specific disclose the integrated conductive bus structure (102) is made of copper.

Bisosy shows an IC package device (10) as shown in figures 1-3 comprising a lead frame (22, 24) made of copper.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have a lead frame made of copper as taught by Bisosy employed in the assembly of Rostoker et al. in order to provide a better electrical connection.

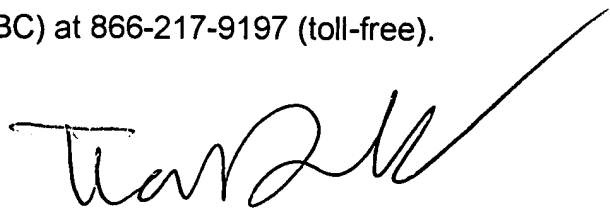
### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan T. Dinh whose telephone number is 571-272-1929. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kammie Cuneo can be reached on 571-272-1957. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2841

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Tuan Dinh', with a long, sweeping horizontal stroke extending to the right.

Tuan Dinh  
March 12, 2006.